

LISTING OF THE CLAIMS

1. (Previously Presented) An apparatus for medical imaging or manufacturing process control using multiple wavelength detection, said apparatus comprising:

a light source operable to produce light at different wavelengths, said light directed at a sample under test; and

an imager operable for detecting light from said sample under test, said imager comprising a plurality of first regions, said plurality of first regions comprising a filter material for detecting light that comprises light at a first wavelength while blocking light that comprises light at a second wavelength, said imager further comprising a plurality of second regions, said plurality of second regions comprising a filter material for detecting light comprising light at said second wavelength, wherein said first and second regions each corresponds to a respective pixel of said imager and wherein said first regions and said second regions are interleaved in a pattern, and wherein a signal value corresponding to said second wavelength is determined for a first region using signal values from a subset of said second regions neighboring said first region.

2. (Original) The apparatus of Claim 1 wherein said second regions comprise a filter material for blocking light that comprises light at said first wavelength.

3. (Original) The apparatus of Claim 1 wherein said pattern comprises a regular pattern of said first and second regions.

4. (Original) The apparatus of Claim 1 wherein en-face images are output using en-face image data corresponding to said first wavelength and en-face image data corresponding to said second wavelength.

5. (Original) The apparatus of Claim 4 wherein said en-face image data corresponding to said first wavelength and said en-face image data corresponding to said second wavelength are differenced.

6. (Original) The apparatus of Claim 1 wherein gain factors are selectively applied to said first and second regions.

7. (Original) The apparatus of Claim 1 further comprising a filter for blocking light having a wavelength other than said first and second wavelengths.

8. (Original) The apparatus of Claim 7 further comprising a filter for blocking subharmonics of said first and second wavelengths.

9. (Original) The apparatus of Claim 1 wherein said light source comprises a source of white light and a diffuser.

10. (Original) The apparatus of Claim 1 used for optical coherence tomography.

11. (Previously Presented) An apparatus for en-face imaging using multiple wavelengths, said apparatus comprising:

an interferometer adapted for en-face image capturing of a sample under test using light having multiple wavelengths including a first wavelength and a second wavelength;

a plurality of first elements optically coupled to said interferometer, said first elements operable for receiving light reflected from said sample under test and for detecting reflected light comprising light of said first wavelength but not light of said second wavelength; and

a plurality of second elements optically coupled to said interferometer, said second elements operable for receiving light reflected from said sample under test and for detecting reflected light comprising light of said second wavelength, wherein said first and second elements are interleaved in a single imager, and wherein signal values from a subset of said second elements neighboring a first element are averaged to determine a signal value corresponding to said second wavelength for said first element;

wherein en-face images are output using en-face image data corresponding to said first wavelength and en-face image data corresponding to said second wavelength.

12. (Previously Presented) The apparatus of Claim 11 wherein said first elements comprise a filter material for blocking light of said second wavelength.

13. (Previously Presented) The apparatus of Claim 12 wherein said second elements comprise a filter material for blocking light of said first wavelength.

14. (Previously Presented) The apparatus of Claim 11 wherein each of said first and second elements corresponds to a respective pixel of said imager.

15-16. (Canceled).

17. (Original) The apparatus of Claim 11 further comprising a filter for blocking light comprising a wavelength other than said first and second wavelengths.

18. (Original) The apparatus of Claim 11 wherein said en-face image data corresponding to said first wavelength and said en-face image data corresponding to said second wavelength are differenced.

19. (Original) The apparatus of Claim 11 wherein said interferometer comprises an optical fiber bundle.

20. (Previously Presented) A method for en-face imaging using multiple wavelengths, said method comprising:

capturing en-face images of a sample under test using light having multiple wavelengths including a first wavelength and a second wavelength;

receiving light reflected from said sample under test and distinguishing between reflected light corresponding to said first wavelength and reflected light corresponding to said second wavelength using an imager comprising interleaved first regions and second regions, said first regions for detecting light of said first wavelength and said second regions for detecting light of said second wavelength;

determining a signal value for said second wavelength for a first region using signal values from a subset of said second regions neighboring said first region; and

outputting en-face images using en-face image data corresponding to said first wavelength and en-face image data corresponding to said second wavelength.

21. (Canceled).

22. (Previously Presented) The method of Claim 20 further comprising: applying gain factors to selected first regions and selected second regions.

23. (Canceled).

24. (Original) The method of Claim 20 further comprising: determining a difference between said en-face image data corresponding to said first wavelength and said en-face image data corresponding to said second wavelength.

25. (Original) The method of Claim 20 further comprising: blocking light having a wavelength other than said first and second wavelengths.